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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,212	02/11/2004	Masato Yanagida	248708US2	9976
22850	7590	10/12/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			GLEITZ, RYAN M	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/775,212

Applicant(s)

YANAGIDA ET AL.

Examiner

Ryan Gleitz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-16 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7 sheets attached.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Drawings*

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s) and no new matter should be entered:

1. The length of the fiber (claims 1, 10);
2. The density of the fiber (claim 1, 10);
3. The member to impart a potential (claim 1, 10);
4. A blade spring (claim 5);
5. The direction of the rollers (claims 6-7);
6. An oscillating device (claim 8); and
7. A one-way clutch (claim 9).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

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pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaname et al. (US 5,842,081).

Kaname et al. disclose a charging device in figure 36 including a charging roller (7bd) having a metal cylinder and an elastic layer located on the metal cylinder. See col. 5, lines 5-9.

A cleaner is configured to clean the charging roller, comprising: an electroconductive brush roller (6ad) comprising: a roller having a shaft, col. 19, line 14.

Brush fibers, hair, are located overlying the roller, are made of polypropylene at a density of 60,000 fibers/in<sup>2</sup>, col. 19, lines 15-17, which reads on the claimed range of 45,000 to 297,000 lines/in<sup>2</sup>, converted from a range of 7,000 to 46,000 lines/cm<sup>2</sup>, with sufficient specificity.

The fiber can be 2.0 mm long, which reads on a length from 0.3 to 2.5 mm. See Table 4.

The fiber is made from polypropylene of 25 um in diameter. Col. 19, lines 15-17. The density of the polypropylene is not disclosed, but it is known to be approximately 0.9 g/cm<sup>3</sup>. See Polypropylene data sheet, <http://www.goodfellow.com/csp/active/STATIC/E/Polypropylene.HTML>.

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Denier is often used as a unit of width but is actually calculated from the weight in grams of 9000 meters of the fiber. The fiber 9000 m long having a diameter of 25  $\mu\text{m}$  would have a volume of  $9000 \times 100 \times \pi \times (25 \times 10^{-4})^2 \text{ cm}^3$ . The mass would then be density \* volume. Assuming a density of  $0.9 \text{ g/cm}^3$ , the mass of the fibers is  $0.9 \times 9000 \times 100 \times \pi \times (25 \times 10^{-4})^2 \text{ g}$ , which is 15.9 deniers, a value that reads on the claimed range of 0.1 to 20 denier. Note that any reasonable value used for the density of the propylene, i.e. from 0.1 to  $1.0 \text{ g/cm}^3$ , would lead to the claimed range in deniers.

A potential applied to the brush roller was varied from -500 to -4350 V. Col. 20, lines 8-10. The potential on the charging roller can be -1350 V. Col. 11, line 9. This reads on substantially a same potential is applied to the brush roller as to the charging roller.

Regarding claim 7, the electroconductive brush roller rotates so as to counter the charging roller at a contact point thereof. See col. 20, lines 67.

Regarding claim 11, photoreceptor (1) is an image bearing member.

Regarding claim 12, the image forming apparatus includes an exposure unit (3) is a light irradiator that forms an electrostatic latent image on the image bearing member (1), a developing device (4), a fixing device, as shown in figure 39, and a transferring device (5).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaname et al. (US 5,842,081) in view of Yoshino et al. (US 6,175,711).

Kanama disclose that the brush roller (6ad) is conductive, but do not disclose that the electric resistance is from 10 to  $10^8$  ohms.

However, Yoshino et al. disclose a similar conductive brush roller having fibers of 10 denier for cleaning in an image forming device, including fibers made of nylon, having a resistance in the claimed range. Col. 8, lines 25-31.

Regarding claim 8, the brush is reciprocated circumferentially or tangentially to vary the location of the brush, which reads on an oscillating device configured to oscillate the brush roller in a longitudinal direction. Col. 8, lines 14-17.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the fibers of Kaname et al. with the oscillator taught by Yoshino et al. to vary the position of the brush in a longitudinal direction and with the conductive nylon of low resistance so that the toner can be electrically connected to the brush. Col. 8, lines 15-30.

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Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaname et al. (US 5,842,081) in view of Amemiya et al. (EP 1,229,399).

Kanama et al. disclose the charging device above, but do not disclose a back coat treatment or the brush being driven by the charging roller.

However, Amemiya et al. disclose a similar charging device in which the fibers are attached using electrostatic implementation and adhesive, [0030], which reads on a back coat treatment.

Regarding claim 6, the brush is not driven by a drive source, but is driven by the charge roller. [0022].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the charging device of Kanama et al. to use a back coat treatment in order to attach the fibers to the brush roller, [0029], and to drive the brush roller by the charge roller to obviate the need for an exclusive drive source and thereby simplify the configuration of the cleaning device, reducing the cost. [0022].

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaname et al. (US 5,842,081) in view of Morimoto et al. (JP 59-040679).

Kanama et al. disclose the charging device including a fiber brush that is brought in and out of contact with the charging roller, col. 19, lines 18-26, but do not disclose that this is done using a clutch.

However, Morimoto et al. disclose a cleaning brush for an image forming device that is brought in and out of contact with the surface to be cleaning with a clutch (84). See abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the charging device of Kanama et al. with the clutch taught by Morimoto et al. as the necessary mechanical means to bring a cleaning device in and out of contact with the surface to be cleaned.

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaname et al. (US 5,842,081) in view of Emoto et al. (US 2003/0152859).

Kaname et al. disclose the image forming apparatus above but do not disclose the specifics of the toner or a method of preparing the toner.

However, Emoto et al. disclose a toner having a volume average particle diameter ( $D_v$ ) of from 3 to 7  $\mu\text{m}$ , [0021], which reads on the claimed range of 3 to 8  $\mu\text{m}$ , and a ratio ( $D_v/D_n$ ) of the volume average particle diameter ( $D_v$ ) to a number average particle diameter ( $D_n$ ) of from 1.00 to 1.40. See abstract.

Regarding claim 14, each of form factors SF-1 and SF-2 of the toner is greater than 100 and not greater than 180. See [0031].

Regarding claim 15, the toner is prepared by a method including dispersing or dissolving toner constituents including at least a polyester prepolymer, [0059], having a functional group having a nitrogen atom, [0132], a polyester resin and a colorant, abstract, and a release agent in an organic solvent, [0084], to prepare a toner constituent liquid; and dispersing the toner constituent liquid in an aqueous medium, [0084] including a compound capable of reacting the functional group of the polyester prepolymer to perform at least one of crosslinking reaction and



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elongation reaction of the polyester prepolymer and to form toner particles in the aqueous medium. [0056].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate into the image forming apparatus of Kaname et al., the toner taught by Emoto et al. to produce high quality images having good reproducibility of a micro dot image. [0010].

Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaname et al. (US 5,842,081) in view of Haneda et al. (2002/0106574).

Kaname et al. disclose the image forming apparatus above but do not disclose major and minor axes diameter of the toner.

However, Hanada et al. disclose a flattened spheroidal toner having a major-axis particle diameter  $r_1$  from 5 to 20  $\mu\text{m}$ , a minor-axis particle  $r_2$  diameter of 5 to 20  $\mu\text{m}$ , and a thickness  $r_3$  of 1 to 5  $\mu\text{m}$ . [0047].

Taking values from these disclose ranges, if  $r_1=8 \mu\text{m}$ ,  $r_2=6 \mu\text{m}$ , and  $r_3=5 \mu\text{m}$ , the claimed ranges and inequalities are satisfied.

It would have been obvious to one of ordinary skill in the art to incorporate into the the image forming apparatus of Kaname et al., the toner taught by Haneda et al. to make it possible to obtain a high-density image even with a small amount of toner consumption and to make it possible to obtain a high-quality image with little ruggedness and without toner scattering. [0008].

***Allowable Subject Matter***

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Gleitz whose telephone number is (571) 272-2134. The examiner can normally be reached on Monday-Friday between 9:00AM and 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on (571) 272-2136. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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